

# Notice of Allowability

Application No.

10/782,903

Examiner

Alessandro Amari

Applicant(s)

KAWANO ET AL.

Art Unit

2872

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amdt of 7/24/2007.
2. ☒ The allowed claim(s) is/are 1,5,8-12 and 17-22.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### REASONS FOR ALLOWANCE

1. Claims 1, 5, 8-12 and 17-22 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Claims 1, 12 and 19 are allowable for at least the reason, "the hologram is recorded by using only a Fourier transform component of the signal light beam in which a spread  $\zeta$  from a zero-order light beam of the Fourier transform image of the signal light beam is defined by the following formula:  $0 \leq \zeta \leq 4f\lambda/d$  where  $f$  is a focal distance of the lens for irradiating the optical recording medium with the signal light beam,  $\lambda$  is a wavelength of the signal light beam, and  $d$  is a length of one side of one bit data of the signal light beam" as set forth in the claimed combination. Claims 5 and 9-11 are allowable due to their dependence on claim 1; claim 18 is allowable due to its dependence on claim 12 and claim 20 is allowable due to its dependence on claim 19.

Claims 8 and 17 are allowable for at least the reason, "setting a region  $A$  corresponding to the minimum Fourier transform component essentially required for data reproduction to the range of the following formula (6),  $0 < A < (4f\lambda/d)^2$  (6) where  $f$  is the focal distance of the lens for irradiating the optical recording medium with the signal light beam,  $\lambda$  is the wavelength of the signal light beam, and  $d$  is a length of one side of one bit data of the signal light beam" as set forth in the claimed combination. Claims 21 and 22 are allowable due to their dependence on claims 8 and 17, respectively.

The prior art of record teaches a hologram recording apparatus or method comprising a light source for outputting a coherent light beam; a spatial light modulator for modulating the light beam from the light source in accordance with data and

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generating a signal light beam; and a holographic optical element for generating a reference light beam having a predetermined shape and intensity on an optical recording medium corresponding to an intensity distribution of the signal light beam on the optical recording medium, from the coherent light beam outputted from the light source, whereby a hologram is recorded by irradiating the optical recording medium with the signal light beam and the reference light beam wherein the signal light beam holds a two-dimensional digital data image and has been Fourier transformed by a lens; the intensity distribution of the reference light beam on the optical recording medium substantially coincides with the intensity distribution of the signal light beam; and the reference light beam has a wavefront which is generated by using a computer-generated hologram, the computer-generated hologram being a kinoform in which only a phase of an object light beam is recorded. However, the prior art of record does not teach a hologram to be recorded using only the recited Fourier transform components and there is no motivation or teaching to modify this difference as derived.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro Amari whose telephone number is (571)272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ava  
18 September 2007

  
ALESSANDRO AMARI  
PRIMARY PATENT EXAMINER